

Appl. No. 10/765,808
Amdt. Dated 09/29/2008
Response to Office Action of 07/31/2008

Attorney Docket No.: N1085-00256
[TSMC2003-0899]

REMARKS/ARGUMENTS

Claims 1-12 and 29-33 are pending in the subject patent application. Claims 1-7, 9-12 and 29-32 were allowed and claims 8 and 33 were rejected.

Applicants respectfully request re-examination, reconsideration and allowance of claim 8 in addition to previously-allowed claims 1-7, 9-12 and 29-32.

Applicants take this opportunity to thank Examiner Moore for discussing the claimed invention, in a telephone conversation that took place on August 19, 2008 and for the Interview Summary, memorializing the same, which was mailed on August 26, 2008.

I. **Allowable Subject Matter**

Applicants acknowledge with appreciation the Examiner's indication, in paragraphs 18 and 19 of the subject Office Action, that claims 1-7, 9-12 and 29-32 are allowed.

II. **Claim Rejections – 35 U.S.C. § 103**

In the subject Office Action, claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,489,249 to Mathad et al. ("Mathad") in view of Japanese Patent No. 2000208492 to Yamashita. Also in the subject Office Action, claim 33 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mathad in view of Yamashita and Japanese Patent No. 20020161262 Nagaiwa et al. ("Nagaiwa").

Applicants respectfully submit that each of these claims rejections is overcome for reasons set forth below.

Claim 33 is cancelled, thereby obviating the rejection thereof.

Independent claim 8 has been amended and recites the features of:

A plasma etching apparatus comprising a chuck for retaining a substrate and a focus ring set, at least one of said chuck

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and said focus ring set formed of a material that includes oxygen therein such that said oxygen is released when an etching operation is carried out, said focus ring set including an upper focus ring that laterally surrounds said chuck and a lower focus ring disposed completely below said upper focus ring and directly underneath a peripheral portion of said chuck.

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In the subject Office action, the Examiner alleges that Mathad provides a "lower focus ring (30) disposed completely below said upper focus ring and directly underneath said substrate", referring to FIG. 3. The Examiner, however, concedes that Mathad does not teach that the oxygen is impregnated in the material of the focus ring and then relies upon Yamashita for supplying this feature: "Yamashita discloses the use of a focus ring formed of a material than [sic] includes oxygen impregnated therein (i.e. existing in quartz) for the purpose of preventing the in-plane uniformity of a semiconductor wafer from being damaged", paragraph 7, subject Office action.

Applicants respectfully submit that 1) Yamashita does not make up for the differences of Mathad and 2) One would not combine Mathad with Yamashita.

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Mathad does not provide a focus ring, much less an oxygen-impregnated lower portion of a focus ring set, directly underneath a chuck, because Mathad does not provide any member under the chuck. See FIG. 3 of Mathad.

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Claim 8 is therefore distinguished from Mathad. Yamashita also does not provide the feature of a focus ring directly underneath the chuck. Since Yamashita, relied upon for providing an oxygen-impregnated member, does not make up for this deficiency of Mathad, amended independent claim 8 is therefore distinguished from the combination of Mathad and Yamashita.

For at least these reasons, the rejection of independent claim 8 should be withdrawn.

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Moreover, Applicants respectfully point out that one of ordinary skill in the art would not replace the **silicon disc 30** illustrated in FIG. 3 of Mathad, with a member formed of anything other than silicon, much less an oxygen impregnated material such as provided in Yamashita because Mathad clearly *teaches away* from making this
5 modification.

Mathad is entitled **ELIMINATION/REDUCTION OF BLACK SILICON IN DT ETCH** and is completely directed to providing a **silicon** conductor member in adjacent relationship with a quartz focus ring. Mathad teaches that the addition of a silicon disc provides an improvement over the prior art which only includes a quartz focus ring.
10 Mathad states, in column 3, lines 30-32 "In general, the invention is accomplished by the addition of a silicon disc, preferably silicon, in the form of a ring adjacent to a normally present insulating quartz ring".

Mathad is clearly directed to adding a **SILICON** ring – formed of the same material as the wafer being processed, to a focus ring arrangement, to provide the
15 advantages provided in column 5, lines 5-34 of Mathad which were reproduced in Applicants' previous response. The new member located in proximity to the focus ring is therefore **NECESSARILY** a silicon member and one in possession of the Mathad embodiment illustrated in FIG. 3 – the embodiment in which the silicon disc is disposed underneath the substrate – would certainly **NOT** switch the material of this silicon disc to
20 that of quartz or an oxygen impregnated material, because it would defeat the inventive purpose of Mathad.

The Mathad teaching would therefore discourage one of ordinary skill from replacing the silicon disc with a quartz material such as provided in Yamashita. Mathad therefore teaches away from using the quartz provided in Yamashita because, for a
25 reference to be considered to teach away from a proposed modification such reference must criticize, discredit or otherwise discourage the proposed combination, *In re: Fulton*, 73 USPQ 2d 1141 (Fed. Cir. 2004).

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Because one of ordinary skill in the art would **not** replace the silicon disc of Mathad with a quartz material, claim 8 is further distinguished from the references of Mathad and Yamashita.

As such, the rejection of claim 8 under 35 U.S.C. §103 should be withdrawn.

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CONCLUSION

Based on the foregoing, each of pending claims 1-12 and 29-33 is in allowable form and the application in condition for allowance, which action is respectfully and expeditiously requested.

Applicants respectfully request entry of the amendment because it is believed that the amendment places the application in condition for allowance, based upon the Examiner's previous rejections and indications of allowable subject matter.

The Assistant Commissioner for Patents is hereby authorized to charge any fees necessary to give effect to this filing and to credit any excess payment that may be associated with this communication, to Deposit Account 04-1679.

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Respectfully submitted,

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